No. 8300140

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Pioneer Hi-Bred International, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

CORN

'G35'

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the* Plant Variety Protection Office *to be affixed at the City of* Washington *this* 26th *day of* October *in the year of our Lord one thousand nine hundred and* eighty-four.

Attest:

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, MEAT, GRAIN & SEED DIVISION

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

FORM APPROVED: OMB NO.0581-0055

No certificate for plant variety protection may be issued unless a completed application form has been received (5 U.S.C. 553).

1. NAME OF APPLICANT(S)
Pioneer Hi-Bred International, Inc.

2. TEMPORARY DESIGNATION

3. VARIETY NAME
~~HD22~~ G-35

4. ADDRESS *(Street and No. or R.F.D. No., City, State, and Zip Code)*
Plant Breeding Division
Department of Corn Breeding
P.O. Box 85, Johnston, IA 50131-0085

5. PHONE *(Include area code)*
515/270-3300

FOR OFFICIAL USE ONLY

PVPO NUMBER
8300140

6. GENUS AND SPECIES NAME
Zea mays

7. FAMILY NAME *(Botanical)*
Gramineae

FILING
DATE 5/16/83
TIME 8:00 [XX] A.M. [ ] P.M.

8. KIND NAME
Corn

9. DATE OF DETERMINATION
1978

FEES RECEIVED
AMOUNT FOR FILING
$ 1,000
DATE 5/16/83
AMOUNT FOR CERTIFICATE
$ 500.00
DATE 10/2/84

10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION *(Corporation, partnership, association, etc.)*
Corporation

11. IF INCORPORATED, GIVE STATE OF INCORPORATION
Iowa

12. DATE OF INCORPORATION
May 6, 1926

13. NAME AND ADDRESS OF APPLICANT REPRESENATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS
Dr. Richard L. McConnell
Plant Breeding Division
Pioneer Hi-Bred International, Inc.
P.O. Box 85, Johnston, IA 50131-0085

14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED

a. [X] Exhibit A, Origin and Breeding History of the Variety *(See Section 52 of the Plant Variety Protection Act.)*

b. [X] Exhibit B, Novelty Statement

c. [X] Exhibit C, Objective Description of the Variety *(Request form from Plant Variety Protection Office.)*

d. [X] Exhibit D, Additional Description of the Variety

15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? *(See Section 83(a) of the Plant Variety Protection Act.)*
[ ] Yes *(If "Yes," answer items 16 and 17 below)* [X] No

16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
[ ] Yes [ ] No

17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?
[ ] Foundation [ ] Registered [ ] Certified

18. DID THE APPLICANT(S) FILE FOR PROTECTION OF THE VARIETY IN THE U.S. OR OTHER COUNTRIES?
[ ] Yes *(If "Yes," give names of countries and dates)*
[X] No

19. HAVE RIGHTS BEEN GRANTED IN THE U.S. OR OTHER COUNTRIES?
[ ] Yes *(If "Yes," give names of countries and dates)*
[X] No

20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT
Pioneer Hi-Bred International, Inc.
by:

DATE

SIGNATURE OF APPLICANT
Richard L McConnell

DATE
5-9-83

FORM LMGS-470 (9-81) (Edition of 1-78 is obsolete)

C O R N

~~'HD22'~~ 'G35'

NOTE: 'HD22' IS 'G35' WHERE IT APPEARS IN THE APPLICATION. RJS 8/7/84

14A. Exhibit A. Origin and Breeding History

Pedigree: G3BD2<4B3W37A/H7FS6)X8112111

Pioneer line ~~'HD22'~~ 'G35', Zea mays L., a yellow dent corn inbred, was developed by Pioneer Hi-Bred International, Inc. from the F2 population of the single cross G3BD2 x H7FS6. The progenitors of HD22 are also proprietary inbred lines of Pioneer Hi-Bred International, Inc. The pedigree method of breeding was used in the development of this inbred as per the following.

G3BD2 was backcrossed four times to a related inbred line (B3W37A) with the HT source of resistance to Northern leaf blight (Helminthosporium turcicum) before it was used to make the F1 cross with H7FS6.

F2 seed was obtained in the field at Homestead, Florida, during the winter of 1972 by selfing the F1 hybrid G3BD2 x H7FS6. The F2 population was grown and self-pollinated in the Northern leaf blight plot at Mankato, Minnesota, in 1973. F3 seed was grown ear to row in the Northern leaf blight plot at Mankato, Minnesota, in 1974. Based on general agronomic performance and tolerance to Northern leaf blight, ears from three selfed plants were saved from the F3 ear-row No. 8. Because the maturity of this breeding population was too late for the Mankato, Minnesota, area, the seed was transferred to Johnston, Iowa, and the F4 family was grown ear to row in 1975. Two selfed ears were selected from the F4 ear-row No. 1 based on that rows excellent per se ear size and late season plant health. The F5 generation was grown during the winter of 1975-76 at Homestead, Florida. Three self-pollinated ears were saved from ear-row No. 1. In 1976, the F6 family was grown ear to row at Johnston, Iowa, and three self-pollinated ears were saved from ear-row No. 2. In addition, the F6 was crossed to an inbred tester for the purpose of getting an estimate of the line's combining ability. In 1977, yield trials were conducted at Johnston, Iowa, involving the testcross made in 1976 to the F6. Based on yield test performance and the line's per se performance in the nursery, three ears were saved from ear No. 1 in the F6 generation. During 1978, additional yield trials were grown at Johnston, Iowa, Carrollton, Missouri, and Princeton, Illinois, involving testcrosses to the F7 generation. 58 replications of yield data were collected. Based on hybrid yield test performance and inbred per se observations, the line was determined to be superior to other inbreds evaluated in 1978. Five ears were saved from ear-row No. 1 in the F7 generation, and the line was named 'HD22' in December 1978. Since the line was named, additional hybrid combinations have been evaluated and subsequent generations of the line have been grown and hand-pollinated with observations made for uniformity. An outline of the breeding profile of the inbred is attached.

14A. Exhibit A. Origin and Breeding History of Corn Inbred Line 'C35' ~~HD22~~

Season/Year	Inbreeding Level	Nursery Location	Pedigree	Number of Ears Saved
Summer 1972	F0	Carrollton, MO	F1 cross made.	--
Winter 1972-73	F1	Homestead, FL	G3BD2<4B3W37A/~~H7FS6~~ 'C595'	15
Summer 1973	F2	Mankato, MN	G3BD2<4B3W37A/~~H7FS6~~ 'C595')X	12
Summer 1974	F3	Mankato, MN	G3BD2<4B3W37A/~~H7FS6~~ 'C595')X8	3
Summer 1975	F4	Johnston, IA	G3BD2<4B3W37A/~~H7FS6~~ 'C595')X81	2
Winter 1975-76	F5	Homestead, FL	G3BD2<4B3W37A/~~H7FS6~~ 'C595')X811	3
Summer 1976	F6*	Johnston, IA	G3BD2<4B3W37A/~~H7FS6~~ 'C595')X8112	3
Summer 1977	F7**	Johnston, IA	G3BD2<4B3W37A/~~H7FS6~~ 'C595')X81121	3
Summer 1978	F8	Johnston, IA	G3BD2<4B3W37A/~~H7FS6~~ 'C595')X811211	5
December 1978	Line named HD22.			
1979-82	Line increased by hand-pollination and in isolated fields with observations made for uniformity.			

*Testcross made for yield testing in 1977. 'C35'

**More hybrid combinations made involving ~~HD22~~ for testing in 1978.

'G35'
~~HD22~~ has shown uniformity and stability for all traits as described in Exhibit C (form LPGS-470-28) - "Objective Description of Variety." It has been self-pollinated and ear-rowed a sufficient number of generations with careful attention paid to uniformity of plant type to assure genetic homozygosity and phenotypic stability. HD22 has been increased by the Parent Corn Department, Pioneer's foundation seed group, every year since 1980. The line has been increased both by hand and in isolated fields with continued observation for uniformity.

A variant trait observed in HD22 is that under certain environmental conditions pericarp color varies from colorless to a light reddish brown or bronze color.

Pioneer Hi-Bred International, Inc., Des Moines, Iowa, is the employer of the plant breeders involved in the selection and development of HD22. Pioneer Hi-Bred International, Inc. has the sole rights and ownership of HD22.

14B. Exhibit B. Novelty Statement

'G35' '595' '595'
'~~HD22~~' is most similar to the inbred line ~~H7FS6~~. ~~H7FS6~~ is also a proprietary inbred line of Pioneer Hi-Bred International, Inc. and is half the parentage of HD22. HD22 differs from H7FS6 in that it reaches 50% pollen shed and 50% silk, 70 and 50 heat units, respectively, earlier than H7FS6. HD22's anther color is yellowish-brown whereas the anther color for H7FS6 is purple. The angle of the leaves and tassel branches of HD22 are greater than 30 degrees; the angle of leaves and tassel branches of H7FS6 are less than 30 degrees.

NOTE: 'H7FS6' IS VARIETY '595' RJS 8/7/84
'HD22' IS VARIETY 'G35'

FORM APPROVED: OMB NO. 40-R3822

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, POULTRY, GRAIN & SEED DIVISION
BELTSVILLE, MARYLAND 20705

EXHIBIT C
(Corn)

OBJECTIVE DESCRIPTION OF VARIETY
CORN *(ZEA MAYS)*

NAME OF APPLICANT(S)
Pioneer Hi-Bred International, Inc.

ADDRESS *(Street and No. or R.F.D. No., City, State, and ZIP Code)*
Plant Breeding Division
Department of Corn Breeding
P. O. Box 85
Johnston, IA 50131-0085

FOR OFFICIAL USE ONLY

PVPO NUMBER
8300140

VARIETY NAME OR TEMPORARY DESIGNATION
~~HD22~~ 'E-35'

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (e.g. [0][8][9] or [0][9]) when number is either 99 or less or 9 or less.

1. TYPE:

[2] 1 = SWEET 2 = DENT 3 = FLINT 4 = FLOUR 5 = POP 6 = ORNAMENTAL

2. REGION WHERE BEST ADAPTED IN THE U.S.A.:

[5] 1 = NORTHWEST 2 = NORTHCENTRAL 3 = NORTHEAST 4 = SOUTHEAST
5 = SOUTHCENTRAL 6 = SOUTHWEST 7 = MOST REGIONS

3. MATURITY (In Region of Best Adaptability):

(Under "comments" (pg. 3) state how heat units were calculated)

[7][2] DAYS FROM EMERGENCE TO 50% OF PLANTS IN SILK	[1][5][8][9]	HEAT UNITS
[ ][ ] DAYS FROM 50% SILK TO OPTIMUM EDIBLE QUALITY	[ ][ ][ ][ ]	HEAT UNITS
[ ][ ] DAYS FROM 50% SILK TO HARVEST AT 25% KERNEL MOISTURE	[ ][ ][ ][ ]	HEAT UNITS

4. PLANT:

[2][1][1] CM. HEIGHT (To tassel tip)

[1][0][2] CM. EAR HEIGHT (To base of top ear)

[0][4] CM. LENGTH OF TOP EAR INTERNODE

Number of Tillers:

[1] 1 = NONE 2 = 1–2 3 = 2–3 4 = > 3

Number of Ears Per Stalk:

[1] 1 = SINGLE 2 = SLIGHT TWO-EAR TENDENCY
3 = STRONG TWO-EAR TENDENCY 4 = THREE-EAR TENDENCY

Cytoplasm Type:

[1] 1 = NORMAL 2 = "T" 3 = "S" 4 = "C" 5 = OTHER (Specify) _____

5. LEAF (Field Corn Inbred Examples Given):

Color:

[2] Observed color between Wf9 and B14.
1 = LIGHT GREEN (HY) 2 = MEDIUM GREEN (WF9) 3 = DARK GREEN (B14) 4 = VERY DARK GREEN (K166)

Angle from Stalk (Upper half):

[2] 1 = < 30° 2 = 30–60° 3 = > 60°

Sheath Pubscence:

[1] 1 = LIGHT (W22) 2 = MEDIUM (WF9)
3 = HEAVY (OH26)

Marginal Waves:

[1] 1 = NONE (HY) 2 = FEW (WF9) 3 = MANY (OH7L)

Longitudinal Creases:

[1] 1 = ABSENT (OH51) 2 = FEW (OH56A)
3 = MANY (PA11)

Width:

[1][1] CM. WIDEST POINT OF EAR NODE LEAF

Length:

[0][7][6] CM. EAR NODE LEAF

[1][7] NUMBER OF LEAVES PER MATURE PLANT

6

6. TASSEL:

[0][8] NUMBER OF LATERAL BRANCHES

Branch Angle from Central Spike:

[2] 1 = < 30° 2 = 30–40° 3 = > 45°

Peduncle Length:

[2][1] CM. FROM TOP LEAF TO BASAL BRANCHES

Pollen Shed:

[2] 1 = LIGHT (WF9) 2 = MEDIUM 3 = HEAVY(KY21)

[6] **Anther Color:** 1 = YELLOW 2 = PINK 3 = RED 4 = PURPLE 5 = GREEN

[5] **Glume Color:** 6 = OTHER (Specify) Yellow-brown, secondary deep purplish red

Observed deep yellow green, secondary deep reddish purple

Pollen Restoration for Cytoplasms (o = Not Tested, 1 = Partial, 2 = Good)

[0] "T" [0] "S" [0] "C" [ ] OTHER (Specify Cytoplasm and degrees of restoration) _____

7. EAR (Husked Ear Data Except When Stated Otherwise):

[1][8] CM LENGTH [4][1] MM. MID-POINT DIAMETER [1][3][6] GM. WEIGHT

Kernel Rows:

[2] 1 = INDISTINCT 2 = DISTINCT [1][2] NUMBER

[1] 1 = STRAIGHT 2 = SLIGHTLY CURVED 3 = SPIRAL

Silk Color (Exposed at Silking Stage):

[4] Observed purplish red

1 = GREEN 2 = PINK 3 = SALMON 4 = RED

(Green silks at emergence; after one day silks turn red)

Husk Color:

[1] FRESH Observed yellow green

[6] DRY 1 = LIGHT GREEN 2 = DARK GREEN 3 = PINK 4 = RED 5 = PURPLE 6 = BUFF

Observed pale brownish pink

Husk Extention: (Harvest Stage)

[2] 1 = SHORT (Ears Exposed) 2 = MEDIUM (Barely Covering Ear) 3 = LONG (8–10CM Beyond Ear Tip) 4 = VERY LONG (> 10 CM)

Husk Leaf:

[3] 1 = SHORT (< 8 CM) 2 = MEDIUM (8–15 CM) 3 = LONG (> 15 CM)

Shank:

[1][1] CM LONG [4] NO. OF INTERNODES

Position at Dry Husk Stage:

[3] 1 = UPRIGHT 2 = HORIZONTAL 3 = PENDENT

Taper:

[2] 1 = SLIGHT 2 = AVERAGE 3 = EXTREME

Drying Time (Unhusked Ear):

[ ] 1 = SLOW 2 = AVERAGE 3 = FAST

8. KERNEL (Dried):

Size (From Ear Mid-Point):

[1][0] MM LONG [0][9] MM. WIDE [0][4] MM. THICK

Shape Grade (% Rounds)

[2] 1 = < 20 2 = 20–40 3 = 40–60 4 = 60–80 5 = > 80

7

8300140

8. KERNEL (Dried) :

[1] **Pericarp Color:** Observed translucent white.
1 = COLORLESS 2 = RED-WHITE CROWN 3 = TAN 4 = BRONZE
5 = BROWN 6 = LIGHT RED 7 = CHERRY RED
8 = VARIEGATED (Describe) _____

[1] **Aleurone Color:** 1 = HOMOZYGOUS 2 = SEGREGATING (Describe) _____

[1] Observed opaque white.
1 = WHITE 2 = PINK 3 = TAN 4 = BROWN 5 = BRONZE 6 = RED
7 = PURPLE 8 = PALE PURPLE 9 = VARIEGATED (Describe) _____

[3] **Endosperm Color:** 1 = WHITE 2 = PALE YELLOW 3 = YELLOW 4 = PINK-ORANGE 5 = WHITE CAP.

Endosperm Type:

[3] 1 = SWEET (su1) 2 = EXTRA SWEET (sh2) 3 = NORMAL STARCH 4 = HIGH AMYLOSE STARCH
5 = WAXY STARCH 6 = HIGH PROTEIN 7 = HIGH LYSINE 8 = OTHER (Specify) _____

[3][3] GM. WEIGHT /100 SEEDS (Unsized Sample)

9. COB:

[2][5] MM. DIAMETER AT MID-POINT

Strength:

[2] 1 = WEAK 2 = STRONG

Color: Observed reddish brown
[4] 1 = WHITE 2 = PINK 3 = RED 4 = BROWN
5 = VARIEGATED 6 OTHER (Specify) _____

10. DISEASE RESISTANCE (0 = Not Tested, 1 = Susceptible, 2 = ~~Resistant~~):

[1]	STALK ROT (Diplodia)	[2]	STALK ROT (Fusarium) Tolerant	[0]	STALK ROT (Gibberella)
[2]	NORTHERN LEAF BLIGHT	[1]	SOUTHERN LEAF BLIGHT	[2]	SMUT (Head)
[1]	SOUTHERN RUST	[2]	CORN SMUT (Common)	[2]	BACTERIAL WILT (Stewart's)
[0]	BACTERIAL LEAF BLIGHT	[1]	MAIZE DWARF MOSAIC	[0]	STUNT
[ ]	OTHER (Specify)				

11. INSECT RESISTANCT (0 = Not Tested, 1 = Susceptible, 2 = Resistant):

[1]	CORNBORER (European)	[1]	EARWORM	[0]	SAPBEETLE	[0]	APHID
[0]	ROOTWORM (Northern)	[1]	ROOTWORM (Western)				
[0]	ROOTWORM (Southern)	[ ]	OTHER (Specify) _____				

12. VARIETIES MOST CLOSELY RESEMBLING THAT SUBMITTED FOR THE CHARACTERS GIVEN:

CHARACTER	VARIETY	CHARACTER	VARIETY
Maturity	~~H7156~~ 595	Kernel Type	~~H7156~~ 595
Plant Type	~~H7156~~ 595	Quality (Edible)	
Ear Type	~~H7156~~ 595	Usage	595 ~~H7156~~ & M017

REFERENCES:

U.S. Department Agriculture. Yearbook 1937.

Corn: Culture, Processing, Products. 1970 Avi Publishing Company, Westport, Connecticut. (Numerous (Authors)

Emerson, R.A., G.W. Beadle, and A.C. Fraser. A Summary of Linkage Studies in Maize. Cornell A.E.S., Mem. 180. 1935.

The Mutants of Maize. 1968. Crop Science Society of America. Madison, Wisconsin.

Stringfield, G.H. Maize Inbred Lines of Ohio. Ohio A.E.S. Bul. 831. 1959.

Butler, D.R. 1954 — A System for the Classification of Corn Inbred Lines — PhD. Thesis, Ohio State University.

COMMENTS: Heat units are accumulated from daily temperatures as follows:
HI = Maximum air temperature in Fahrenheit, but not greater than 86.
LO = Minimum air temperature in Fahrenheit, but not less than 50.
Heat Units = (HI + LO)/2 − 50, but not less than 0.

8

NOTE: 'HD22' IS VARIETY 'G35'
'H7FS6' IS VARIETY '595' — RJS 8/7/84

14D. Exhibit D. Additional Description of ~~HD22~~. 'G35'.
'G35'
'~~HD22~~' is a yellow dent inbred line of corn, Zea mays L.
'G35' '595'
As an inbred per se, ~~HD22~~ is similar to ~~H7FS6~~ in a number of plant and seed characteristics. Certain similarities are expected since half the parentage of HD22 is H7FS6. However, there are a number of distinguishable differences between the two inbreds as already stated in Exhibit B.

HD22 is similar to MO17 from the standpoint of use and performance in hybrids. Both inbreds contribute high yield, fast drying grain, and average to below average standability. HD22 significantly differs from MO17, however, as it imparts better late-season plant health to its hybrids, and these hybrids are slightly earlier to maturity than MO17's. For comparitive purposes, data are attached with comparisons of HD22 to both H7FS6 and MO17 (crossed to the same tester inbred line and evaluated in the same locations).

HD22 has above average tolerance to common rust (Puccinia sorghi), Stewart's bacterial wilt (Erwinia stewartii), and head smut (Sphacelotheca reiliana). It is tolerant of the leaf phase of anthracnose (Colletotrichum graminicola) but susceptible to the stalk phase. It is also susceptible to Southern leaf blight (Helminthosporium maydis), Helminthosporium leaf spot (Helminthosporium carbonum), eye spot (Kabatiella zeae), grey leaf spot (Cercospora zeae), and sorghum downy mildew (Sclerospora sorghi).

Distinguishing characteristics of hybrids in which HD22 is a parent are high yields for maturity, fast grain dry-down, average standability, and above average stay green (late-season plant health). HD22 hybrids are best adapted to the mid-maturity Corn Belt areas west of the Mississippi River. HD22 hybrids perform well under very good growing conditions but also yield well under conditions of drought and heat stress. HD22 hybrids are average in size. These hybrids have the capability of producing large ears under conditions of either low plant density or optimum environments.

Exhibit 14D. Exhibit D. Comparison of ~~HD22~~ '635' and ~~H7PS6~~ '595' crossed to same tester line and the hybrids evaluated at the same locations. All values are expressed as percent of the test mean except yield, which is expressed as bushels/acre adjusted to 15.5% grain moisture (1982 Data).

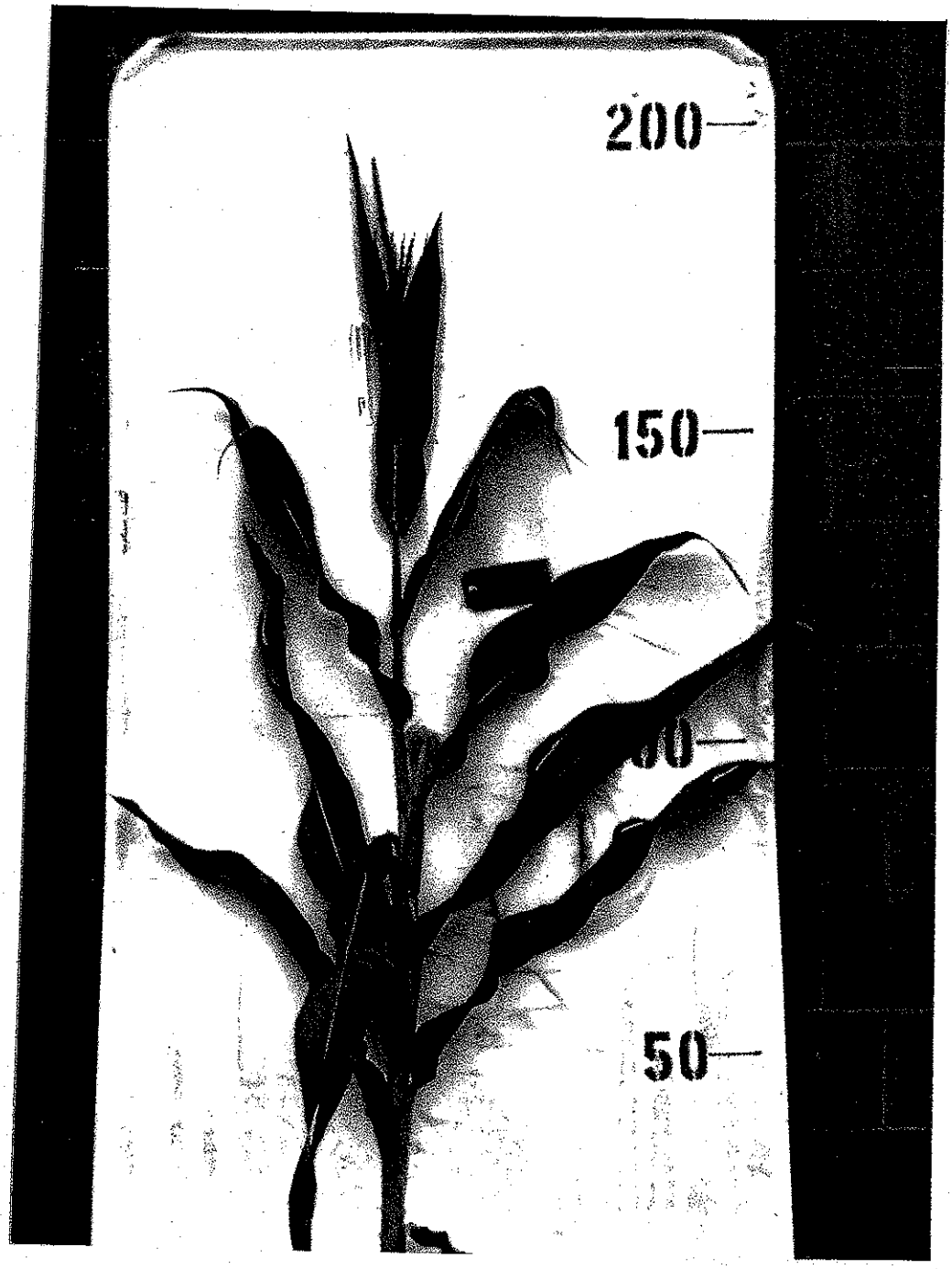
	Inbred	Yield	Percent Yield	Moisture	GDU Shed	Stalk Lodging	Root Lodging	Ears/Plot	Stay Green	Test Weight	Grain Quality	Cob Scores	Seedling Vigor	Plant Height	Ear Height			
No. of Reps.		498	498	498	90	471	267	348	330	447	258	114	318	339	342			
	'635' ~~HD22~~	149	102	93	99	99	99	100	91	99	100	109	98	99	98			
	'595' ~~H7PS6~~	153	105	109	102	100	98	101	115	99	96	80	97	101	103			
Diff.		4	3	16	3	1	1	1	24	0	4	29	1	2	5			

Exhibit 14D. Exhibit D. Comparison of ~~HD22~~ '6-35' and MO17 crossed to the same tester line and the hybrids evaluated at the same locations. All values are expressed as percent of the test mean except yield, which is expressed as bushels/acre adjusted to 15.5% grain moisture (1982 Data).

	Inbred	Yield	Percent Yield	Moisture	GDU Shed	Stalk Lodging	Root Lodging	Ears/Plot	Stay Green	Test Weight	Grain Quality	Cob Scores	Seedling Vigor	Plant Height	Ear Height	Dropped Ears		
No. of Reps.		534	534	534	117	501	252	396	384	495	213	141	375	417	417	219		
	'6-35' ~~HD22~~	151	103	96	100	100	99	100	102	99	96	104	99	100	99	100		
	MO17	147	100	101	100	98	94	97	64	99	97	117	96	101	103	99		
Diff.		4	3	5	0	2	5	3	38	0	-1	-13	3	-1	-4	1		

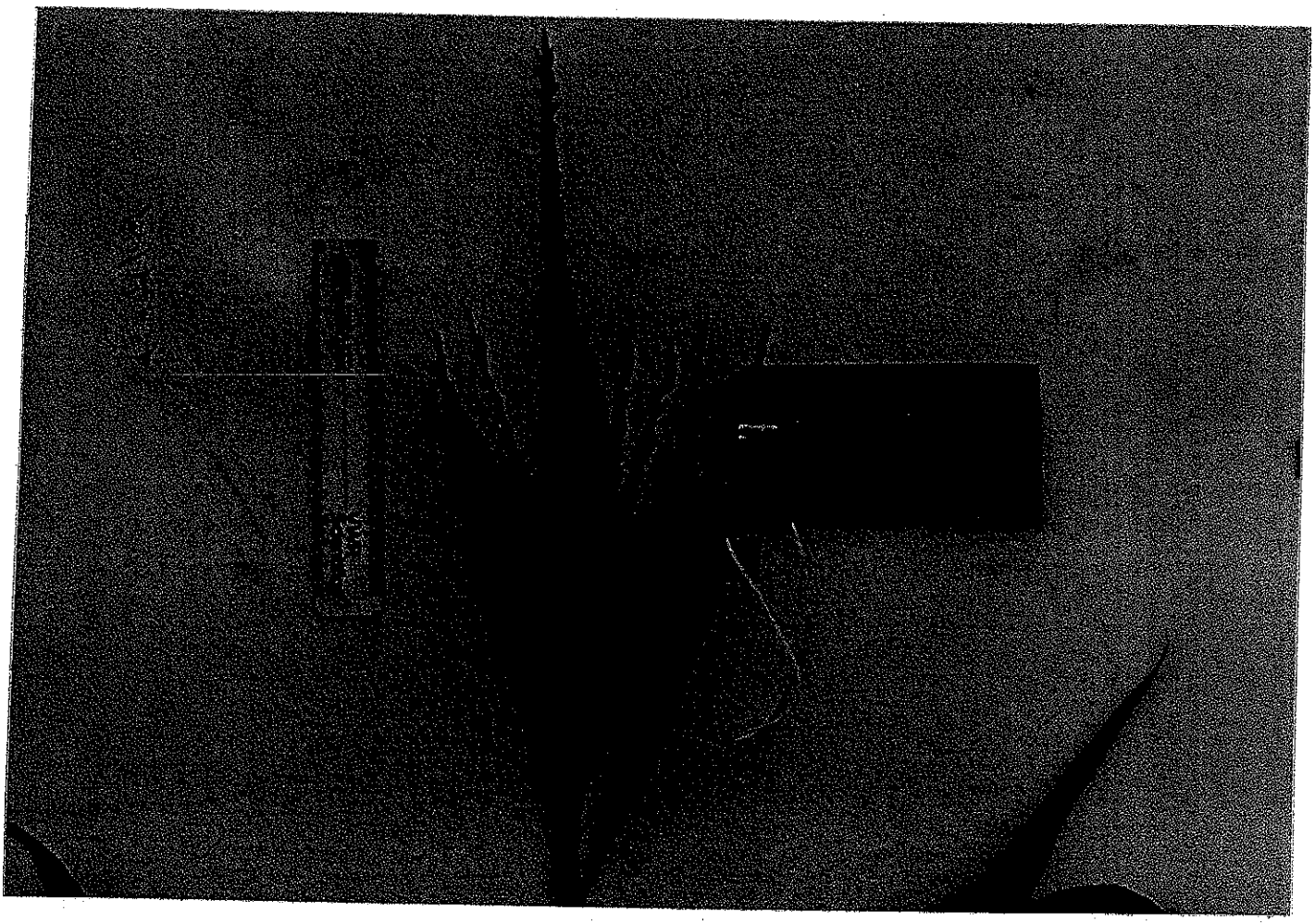
14D. Exhibit D. Additional Description of ~~HD22~~ G35 continued

a. Whole plant



14D. Exhibit D. Additional Description of ~~HB22~~ G35 continued

b. Tassel



14D. Exhibit D. Additional Description of ~~H82~~ E35 continued

c. Ear